

REMARKS

Applicants propose canceling claim 19 without prejudice or disclaimer of its subject matter, amending claim 1 to more appropriately define the present invention, and amending claim 20 to change its dependency. Upon entry of this Amendment after Final, claims 1 – 6, 13 – 18, 20, and 21 remain pending and under current examination.

Regarding the Final Office Action:

In the Final Office Action, the Examiner repeated the rejection of claims 1, 3, and 16 – 18 under 35 U.S.C. § 102(b) as anticipated by Krishnan et al. (U.S. Patent No. 5,451,551) (“Krishnan”), and rejected claims 2, 4 – 6, 13 – 15, and 19 – 21 under 35 U.S.C. § 103(a) as unpatentable over Krishnan and Bothra (U.S. Patent No. 6, 297,557) (“Bothra”). Applicants traverse the rejections, as detailed above, for the following reasons.

Regarding the Amendments to the Claims:

Applicants have amended claim 1 to incorporate elements of claim 19, and in turn have cancelled claim 19 without prejudice or disclaimer of its subject matter. Support for claim 19 was previously pointed out in the Amendment filed on April 9, 2004. In addition, Applicants have amended claim 20 to correct claim dependency in light of cancelled claim 19. Therefore, the amendments contain no new limitations that were not previously presented.

Regarding the Rejection of Claims 1, 3, and 16 – 18 under 35 U.S.C. § 102(b):

In order to properly establish that Krishnan anticipates Applicants’ claimed invention under 35 U.S.C. § 102, each and every element of each of the claims in issue must be found, either expressly described or under principles of inherency, in that single reference.

Furthermore, “[t]he identical invention must be shown in as complete detail as is contained in the

... claim.” See M.P.E.P. § 2131, quoting *Richardson v. Suzuki Motor Co.*, 868 F.2d 1126, 1236, 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989).

Regarding the 35 U.S.C. § 102(b) rejection, Krishnan does not disclose each and every element of Applicants’ present invention as claimed, which will be demonstrated below.

The Examiner alleged that Krishnan shows “a first polishing step 40 with $R_1 \geq 1$ and a second polishing step 30 with $R_2 \leq 1$ ” (Final Office Action, p. 2). Krishnan’s polishing step 30, however, does not constitute Applicants’ claimed “performing a second polishing operation for the insulating film after removal of the cap film thereon at selectivity of R_2 (= removal rate for the cap film/removal rate for the insulating film)” (claim 1, emphasis added). Specifically, Krishnan’s polishing step 30 is performed on copper film 26, and not on insulating film 16. See Krishnan, Fig. 4 and col. 3, lines 49 – 51.

Furthermore, in the “Response to Arguments” section of the Final Office Action, the Examiner alleged that “[h]owever, a second polishing step is applied to layer 58 (Figures 13 and 14 and Column 4 Line 62 to Column 5 Line 2) after the first polishing step. This polishing step would be similar to 30” (Final Office Action, pp. 3 – 4). In contrast to the Examiner’s allegation, however, the polishing step disclosed in Krishnan’s Figs. 13 and 14 does not constitute the second polishing operation in Applicants’ claimed “performing a second polishing operation for the insulating film after removal of the cap film thereon at selectivity of R_2 (= removal rate for the cap film/removal rate for the insulating film)” (claim 1, emphasis added). However, Krishnan’s layer 58 is a copper layer formed on the insulation film, and the polishing step in Krishnan’s Figs. 13 and 14 is performed on copper film 58 – not on an insulating film, as required by claim 1.

Therefore, Krishnan does not disclose at least the following elements of Applicants' claim 1:

“performing a first polishing operation for the cap film deposited on the insulating film for removal at selectivity of R1 (= removal rate for the cap film/removal rate for the insulating film); and performing a second polishing operation for the insulating film after removal of the cap film thereon at selectivity of R2 (= removal rate for the cap film/removal rate for the insulating film), wherein each of the first polishing operation and the second polishing operation is performed by using a slurry having a condition of $R1 > R2$.”

Krishnan does not teach each and every element of Applicants' claimed invention. Thus, the Examiner has not met these essential requirements for a proper 35 U.S.C. § 102(b) anticipation rejection. Independent claim 1 is allowable, for the reasons argued above, and dependent claims 3 and 16 – 18 are also allowable at least by virtue of their dependence from allowable base claim 1. Therefore, the improper 35 U.S.C. § 102(b) rejection of claims 1, 3, and 16 – 18 should be withdrawn.

Regarding the Rejection of Claims 2, 4 – 6, 13 – 15, and 19 – 21 under 35 U.S.C.

§ 103(a):

Applicants respectfully disagree with the Examiner's arguments and conclusions, and respectfully submit that a *prima facie* case of obviousness has not been established. The rejection of claim 19 has been rendered moot by the cancellation of this claim.

In order to establish a *prima facie* case of obviousness, three basic criteria must be met. First, the prior art reference (or references when combined) must teach or suggest all the claim elements. Second, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify a

Applicants have already demonstrated in the previous section that Krishnan does not teach or suggest all the recitations of Applicants' independent claim 1, in addition to the Examiner's admitted deficiencies of Krishnan.

The Examiner's application of Bothra to allegedly cure these deficiencies fails to do so. The Examiner cited Bothra to show making a cap film thinner than the recess in an insulating layer, and alleged that it would have been obvious to incorporate this into the process of Krishnan. See Final Office Action, p. 3, for example.

Even if Bothra were combined with Krishnan as the Examiner suggests, Bothra and Krishnan do not teach or suggest all the features of Applicants' claimed invention, and therefore the Examiner's application of Bothra as a reference does not render the recitations of Applicants' claims obvious. The combination of Bothra and Krishnan fails to teach or suggest at least the following elements of Applicants' independent claim 1:

“performing a first polishing operation for the cap film deposited on the insulating film for removal at selectivity of R1 (= removal rate for the cap film/removal rate for the insulating film); and performing a second polishing operation for the insulating film after removal of the cap film thereon at selectivity of R2 (= removal rate for the cap film/removal rate for the insulating film), wherein each of the first polishing operation and the second polishing operation is performed by using a slurry having a condition of $R1 > R2$.”

Therefore, the Examiner's application of Krishnan and Bothra as references does not satisfy the tenets of a proper 35 U.S.C. § 103(a) rejection of Applicants' dependent claims 2, 4, 6, 13 – 15, and 19 – 21, in light of their dependence from allowable base claim 1. “To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, [...]. “All words in a claim must be considered in judging

prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, [...]. "All words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, [...]". M.P.E.P. § 2143.03, internal citations omitted.

The Examiner has therefore not met an essential criteria for establishing a *prima facie* case of obviousness, wherein "the prior art reference (or references when combined) must teach or suggest all the claim limitations." See M.P.E.P. §§ 2142, 2143, and 2143.03. The Examiner's reliance on Krishnan and Bothra fails to establish *prima facie* obviousness.

Claims 2, 4 – 6, 13 – 15, 20, and 21 are allowable at least by virtue of their dependence from allowable base claim 1. Therefore, the improper 35 U.S.C. § 103(a) rejection should be withdrawn.

Conclusion:

In view of the foregoing, Applicants request reconsideration of the application and withdrawal of the rejections. This Amendment after Final should be entered by the Examiner, placing claims 1 – 6, 13 – 18, 20, and 21 in condition for allowance. The proposed amendments to claims 1 and 20 do not raise new issues or necessitate the undertaking of any additional search of the art by the Examiner, since all of the elements and their relationships claimed were either earlier claimed or inherent in the claims as examined. Furthermore, entry of this Amendment after Final would place the application in better form for appeal, should the Examiner dispute the patentability of the pending claims.

Should the Examiner continue to dispute the patentability of the claims after consideration of this Amendment after Final, Applicants encourage the Examiner to contact their

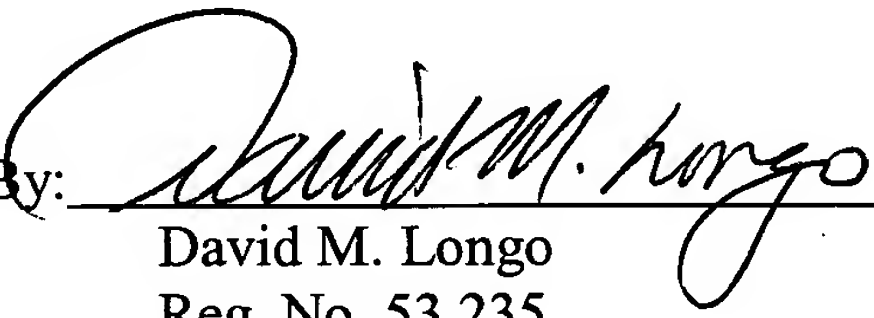
undersigned representative by telephone to discuss any remaining issues or to resolve any misunderstandings.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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